WHAT IS CLAIMED IS:

1. A method for measuring the bit error ratio of a transmission system, comprising:

initializing a plurality of buffers;

storing a number of bit errors generated in a transmission during a period of time T in the plurality of buffers;

monitoring a portion of buffers among the plurality of buffers for a dynamically changing time period less than T; and

determining an average number of bit errors in the monitored portion of buffers.

2. The method of claim 1, wherein the plurality of buffers are sequentially stored starting from a first buffer, and the buffers are stored again starting from the first buffer when the last buffer is stored.

3. The method of claim 1, wherein an E-BER alarm is generated if a current state is not an E-BER alarm generation state and the total number of bit errors of the monitored portion of buffers is more than a prescribed value.

4. The method of claim 1, wherein an E-BER alarm is cleared if a current state is an E-BER alarm generation state and the total number of bit errors of the monitored portion of buffers is less than a prescribed value.

5. The method of claim 3, wherein the prescribed value is an average number of errors generated during the time period T.

6. The method of claim 4, wherein the prescribed value is an average number of errors generated during the time period T.

7. A method for measuring the bit error ratio of a transmission system, comprising:

setting and initializing a plurality of buffers, which are capable of accumulating a number of bit errors in a signal of the transmission system at a prescribed interval of time T;

storing the number of bit errors generated during the period of time T;

determining whether an Excessive Bit Error Ratio (E-BER) alarm has been generated;

selecting and scoping a set of the plurality of buffers from a current buffer to one of a first and second prescribed buffer;

determining whether the E-BER alarm should be generated based on the average number of bit errors in the scoped buffers to the first prescribed buffer after an elapse of the period of time T, if the E-BER alarm has not been previously generated; and

determining whether the E-BER alarm should be cleared based on the average number of bit errors in the scoped buffers from the current buffer back to the second prescribed buffer after an elapse of the period of time T, if the E-BER alarm has previously been generated.

8. The method of claim 7, wherein the E-BER alarm generating step comprises:

scoping g-number of buffers from the current buffer (including the current buffer) using a sliding window after an elapse of the period of time T, when the E-BER alarm is not generated as the result of determination, wherein an E-BER error generation duration time is gT, and the number of 10E-3 BER error generated at a period of time T is N_3;

summing the number of bit errors of the scoped sliding window buffers and calculating the average number of bit errors;

comparing the calculated average number of bit errors of the sliding window buffers with N_3; and

performing one of setting the E-BER alarm generation flag, if it is determined that the average number of bit errors is not less than N_3 as the result of the

comparison and not setting the E-BER alarm while reforming the sliding window buffers by moving the sliding window as far as the period of time T, if it is determined the average number of bit errors is less than N_3 as the result of the comparison.

9. The method of claim 7, wherein the E-BER alarm clearing step comprises:

scoping r-number of buffers from the current buffer (including the current buffer) using a sliding window after an elapse of the period of time T, if an E-BER alarm is generated as the result of determination, an E-BER error repair duration time is rT, and the number of 10E-4 BER error generated at a period of time T is N_4;

summing the number of bit errors of the scoped sliding window buffers and calculating the average number of bit errors;

comparing the calculated average number of bit errors of the sliding window buffers with N_4;

performing one of setting the E-BER alarm clearing flag, when the average number of bit errors is not more than N_4 as the result of the comparison and maintaining the E-BER alarm generation state, if the average number of bit errors is more than N_4 as the result of the comparison.

10. An apparatus for measuring the bit error ratio of a transmission system, comprising:

a first error detector to detect a bit error generated in a transmission line;

an error storing unit, to sequentially store a number of bit errors detected in the first error detector during the period of time T;

a plurality of buffers to store the number of bit errors at an interval of time T; and

a second error detector to monitor at least a portion of buffers of the plurality of buffers, and determine an average number of bit errors within the portion of buffers.

11. The apparatus of claim 10, wherein the error storing unit sequentially stores the number of bit errors starting from a first buffer, and the buffers are stored again starting from the first buffer when the last buffer is stored.

12. The apparatus of claim 10, wherein the portion of buffers is less than the ~~plurality of~~ buffers.

13. The apparatus of claim 10, wherein the second error detector is an Excessive ~~Bit Error Ratio alarm~~ detector.

14. The apparatus of claim 10, wherein the number of buffers in the portion of buffers is dynamically changeable.

15. The apparatus of claim 10, wherein an E-BER alarm is generated if the average number of bit errors of the sliding window exceeds a prescribed value.

16. The apparatus of claim 15, wherein the prescribed value is an average number of bit errors detected by the first error detector during the time period T.

17. A method for measuring the bit error ratio of a transmission system, comprising:

setting an E-BER error generation duration time for judging whether or not an excessive error is instantaneously generated, setting an E-BER error repairing duration time for judging whether or not the E-BER alarm is cleared when an error is intermittently generated after E-BER alarm is generated;

calculating an average number of bit errors of a sliding window buffer corresponding to the E-BER error generation duration time, judging whether an error is instantaneously generated according to an average number of bit errors, and generating an E-BER alarm if an excessive error is instantaneously generated; and

calculating the average number of bit errors of the sliding window buffer corresponding to the E-BER error repairing duration time after the generation of the E-BER alarm, judging whether or not an error is intermittently generated according to the average number of bit errors, and clearing the E-BER alarm when the error is repaired.

Sub A7

18. The method of claim 17, wherein the E-BER alarm generation step comprises:

setting n number of buffers capable of accumulating the number of bit errors in a signal of the transmission system and storing the number of bit errors generated at the period of time T in the corresponding buffer;

comparing whether the total number of bit errors of the sliding window buffers scoped from and including the current buffer back to a g-th buffer is more than the product of g and N_3 when the period of time T is elapsed and an E-BER error generation duration time is gT, wherein the number of sliding window buffers is g, and the number of 10E-3 BER errors generated at a predetermined period of time T;

determining that the total number of bit errors exceeds 10E-3 and setting an E-BER alarm generation flag for generating an E-BER alarm, if the total number of bit errors of g number of sliding window buffers is more than the product of g and N_3 as the result of comparison; and

determining that the total number of bit errors does not reach 10E-3 and forming a sliding window of g size by moving the sliding window as far as the period of time T, if the total number of bit errors is less than the product of g and N_3 as the result of comparison.

19. The method of claim 17, wherein the E-BER alarm clearing step comprises:

comparing whether the total number of bit errors of the sliding window buffers scoped from and including the current buffer back to r-th buffer is less than the product of 4 and N_4 when the period of time T is elapsed, if an E-BER alarm is generated, an E-BER error repair duration time is rT, the number of sliding window buffers is r, and the number of 10E-4 BER errors generated at a certain period of time T is N_4;

determining that the total number of bit errors is less than 10E-4 and resetting an E-BER alarm generation flag for clearing the E-BER alarm, if the total number of bit errors of r number of sliding window buffers is less than the product of 4 and N_4 as the result of comparison; and

determining that the total number of bit errors exceeds 10E-4 and maintaining the E-BER alarm state, if the total number of bit errors of r number of sliding window buffers is not less than the product of 4 and N_4 as the result of comparison.

20. A method of measuring the bit error ratio in a transmission system, comprising:

initializing a plurality of buffers;

accumulating a number of bit errors in a transmission signal during a first prescribed time interval;

determining an active or inactive state of an excessive bit error ratio (E-BER) alarm; and

performing one of generating and clearing the E-BER alarm based on the average number of errors in a dynamically changing segment of the plurality of buffers.

21. The method of claim 20, wherein the E-BER alarm is generated when the E-BER alarm is not active and an average number of bit errors in a selected number of buffers during the prescribed period exceeds the total number of bit errors during a second prescribed time period .

22. The method of claim 20, wherein the E-BER alarm is cleared when the E-BER alarm is active and an average number of bit errors in a selected number of buffers during the prescribed period does not exceed the total number of bit errors during a second prescribed time period.